Report Date: 30 Jun 2014

Summary Report for Individual Task
551-88L-3057
Troubleshoot a Pump
Status: Approved

Condition: Given a pump aboard a vessel, at sea, at anchor or moored alongside a pier, day or night, under all sea and weather conditions, wearing appropriate PPE, (i.e. hearing protection, eye protection, etc.), lock out tag out kit and a marine rail tool box.

Standard: The Soldier correctly troubleshoots a pump aboard an Army vessel, IAW the appropriate Technical Manual and local SOPs, without injury to self or others and without damage to equipment.

Special Condition: None

Safety Risk: Medium

MOPP 4:

Task Statements

Cue: None

DANGER

None

WARNING

None

CAUTION

None

Remarks: None

Notes: None

Performance Steps

1. Demonstrate basic knowledge for troubleshooting procedures of a pump.

a. If the pump fails to build up pressure when the discharge valve is opened and the pump speed is increased.

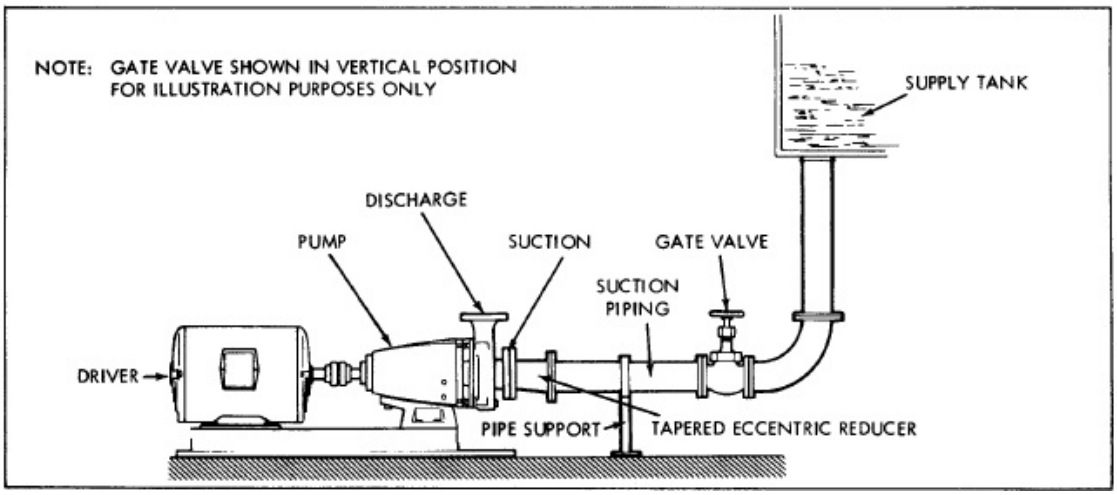
(1) Secure the pump.

(2) Prime the pump to expel all the air through the air cocks on the pump casing.

(3) Open all valves on the pump suction line.

(4) Start the pump again.

b. When pump speed is increased and the pump fails to build up the required pressure or fails to discharge fluid when the discharge valve is open.



Pump and Accessories
Figure 551-88L-3057_01

(1) Stop the unit.

(2) See that all valves in the pump suction lines are open.

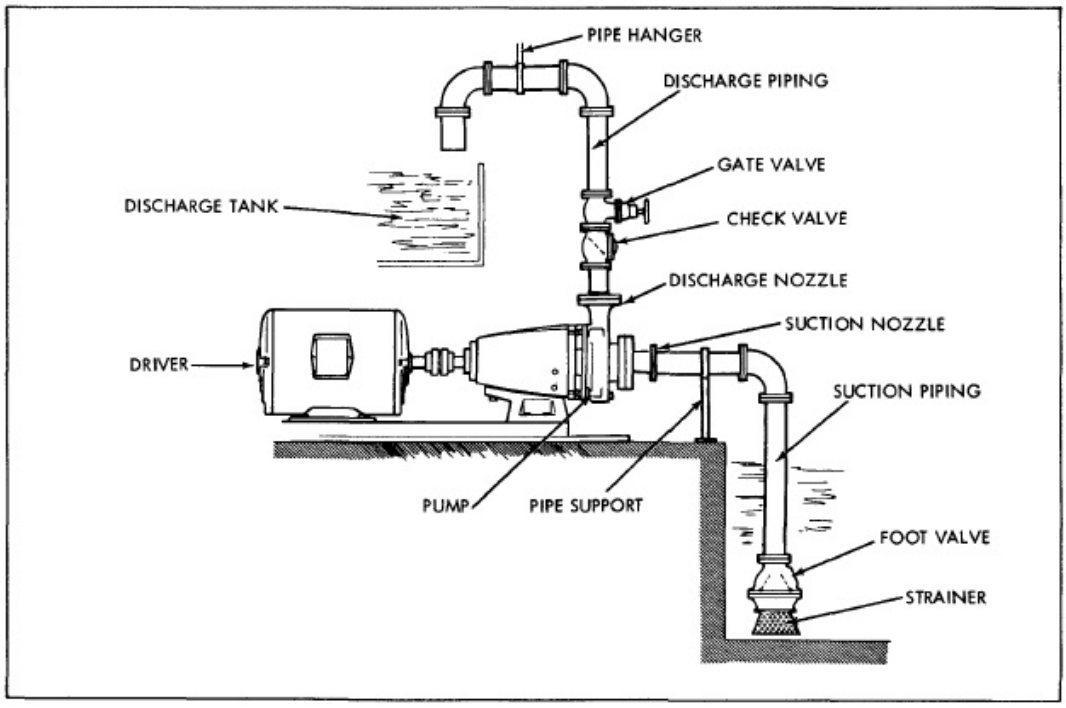
(3) Check the packing of all suction and suction manifold valve stems to ensure that no air is being drawn into the suction piping.

(4) Check the pump shaft packing for air leakage into the pump.

(5) Check the spring case and the inlet and outlet connections of the discharge relief valve to ensure that no air is leaking into the pump suction.

(6) Start the pump again.

2. Describe the basic troubleshooting problems of pumps.



Pump and Accessories
Figure 551-88L-3057_02

a. Failure to deliver water.

(1) Possible causes.

(a) Pump not primed

(b) Insufficient speed

(c) Impeller plugged

(d) Wrong direction of rotation

(2) Actions to take.

(a) Prime pump

(b) Adjust prime mover

(c) Check impeller

(d) Check pump wiring

b. Short in capacity.

(1) Possible causes.

(a) Air leaks in stuffing boxes

(b) Insufficient speed

(c) Insufficient suction head for hot water

(d) Suction strainers fouled

(e) Impellers damaged and casing packing defective

(2) Actions to take.

(a) Tighten stuffing box

(b) Check prime mover

(c) Increase head pressure

(d) Clean strainers

(e) Replace impellers and packing

c. Pump pressure low.

(1) Possible causes.

(a) Insufficient speed

(b) Air leak

(c) Incorrect discharge valves open in manifold (this may allow the pump to discharge into an open line

(d) Mechanical defects

(2) Actions to take.

(a) Adjust prime mover

(b) Adjust packing

(c) Close valve

(d) Replace pump

(Asterisks indicates a leader performance step.)

Evaluation Guidance: None

Evaluation Preparation: None

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Demonstrated basic knowledge for troubleshooting procedures of a pump.			
a. If the pump fails to build up pressure when the discharge valve is opened and the pump speed is increased.			
b. When pump speed is increased and the pump fails to build up the required pressure or fails to discharge fluid when the discharge valve is open.			
2. Described the basic troubleshooting problems of pumps.			
a. Failure to deliver water.			
b. Short in capacity.			
c. Pump pressure low.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	TC 55-509	MARINE ENGINEMAN's HANDBOOK	No	No

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination.

Prerequisite Individual Tasks : None

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
551-88L-3052	Trouble Shoot a Hydraulic System	551 - Transportation (Individual)	Approved

Supported Individual Tasks :

Task Number	Title	Proponent	Status
551-88L-1030	Demonstrate Basic Knowledge of a Hydraulic System	551 - Transportation (Individual)	Analysis
551-88L-1030	Demonstrate Basic Knowledge of a Hydraulic System	551 - Transportation (Individual)	Approved

Supported Collective Tasks : None

ICTL Data :

ICTL Title	Personnel Type	MOS Data
88L40 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL4, Duty Pos: TGB, LIC: EN, SQI: O
88L30 Watercraft Engineer	Enlisted	MOS: 88L, Skill Level: SL3, Duty Pos: TFR, LIC: EN